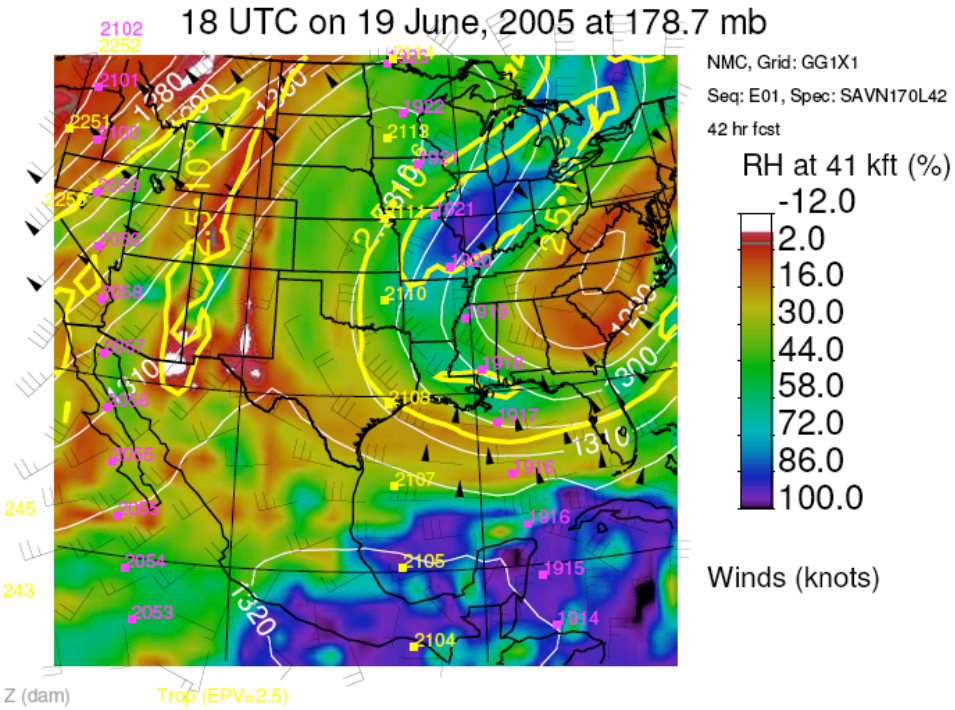
Weather Briefing, 20050618

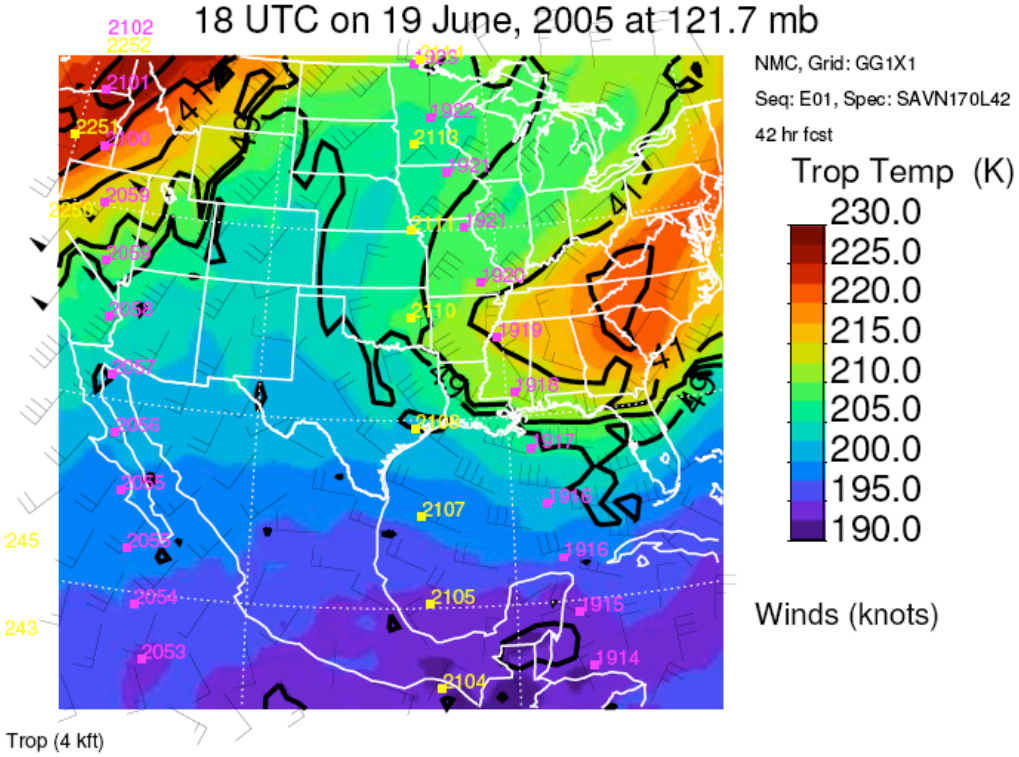
The major immediate forecast issue facing us today is clouds at the south end of the HIRDLS track for tomorrow's flight into cold TTL temperatures. The trend of forecasts is to lower temperatures a few K near the tropopause south of 20N. Forecasts temps are now about 193, which is quite low for this season and this far north. However, the trend of cloud forecasts is unfavorable, with the GFS suggesting cloud altitudes above 45kft south of 23.5N. The TAFB forecast for tomorrow also shows a tropical wave center right over the Gulf of Campeche (GOC). Based on what we have seen, I believe that these GFS cloud forecasts in this region (and elsewhere) are overdone. Convection in the afternoon is most likely to develop on the Yucatan peninsula and on the mainland, in other words on either side of the GOC (I hope I have my geography right – I am referring to the body of water between the Yucatan peninsula on the east and the Mexican mainland on the west at around 20N). In fact, the GFS shows the highest clouds to be there at that time. One point of note is that the TAFB folks are calling for widely scattered TS south of 20N in the GOC today, and south of 22N tomorrow. Another point is that we have westerly flow at 41kft forecast, which is one thing I am realling willing to believe. With convection along the Mexican mainland coast likely up to 22N or so, we have a good chance of getting blowoff to that latitude. This was, in fact, the case (very thin cirrus above the aircraft reported) on the last flight to this region (050615). Whether we should revisit the current flight plan (low altitude point at 20N, ascending to high altitude at the edge of Mexican airspace) will depend somewhat on the determined sensitivity to blowoff and degree of in-flight flexibility.

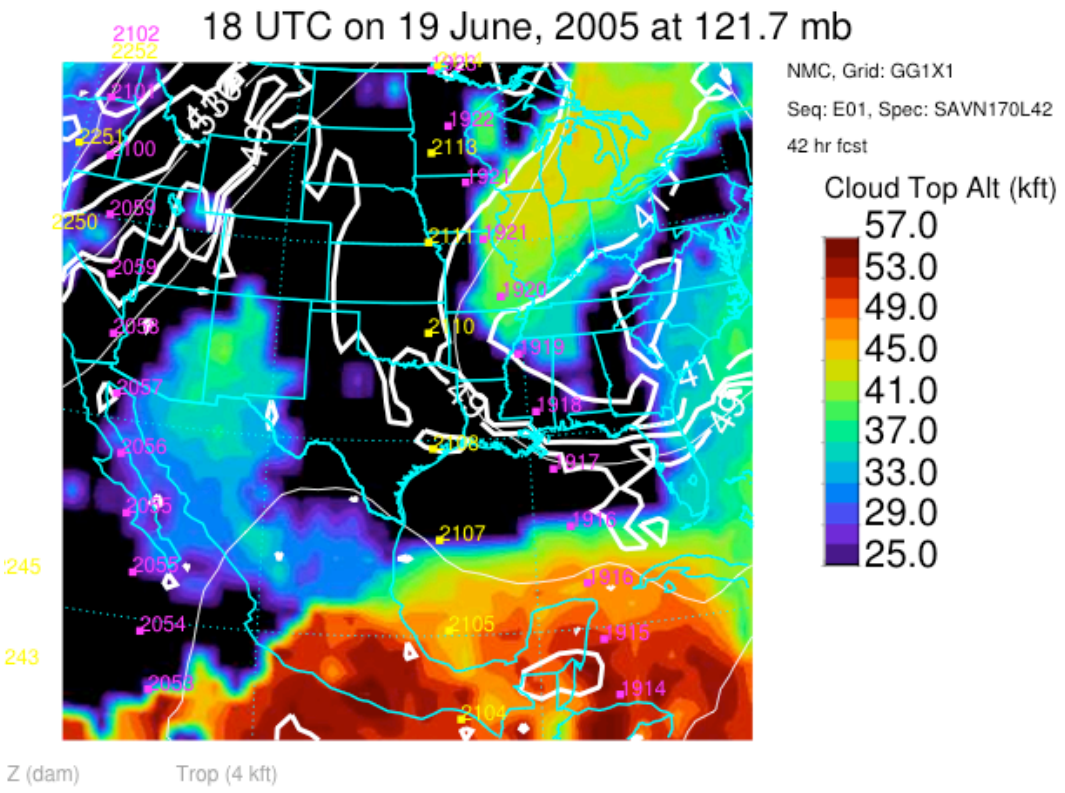
Another forecast issue is the low clouds forecast over TX for the OMI air pollution overpass we are planning northwest of Houston. This is related to a north-south band of moisture that can be seen at 700 mb in both eta and GFS simulations. The two models position these differently, though, with the eta band of clouds well west of the GFS band. Based on past experience with these models, I think the cloud forecast is overdone, and I think we will be fine in this department. A bigger concern is the wind direction, where an axis separating northerlies from southeasterlies is just east of the powerplants. The trend of forecasts is shifting this axis very slowly westward. Winds may be more southeasterly than southerly, and, in any case, will be weak (5 knots). The Dallas forecast office is calling for east winds at Bryan, which (I think) is near these power plants. Surface winds will have a more easterly component than higher in the BL, but we should take note.

As far as surface weather is concerned, we shouldn't have any issues through Wednesday if the ridge over us holds. It will be hot. The NCEP GFS (I don't see this in the other models – EC or UK) develops an easterly wave propagating northwestward at us from the Yucatan. This could give us rain by Thursday. This is pretty far out and we should wait and see. I wouldn't make any plans based on this as yet.

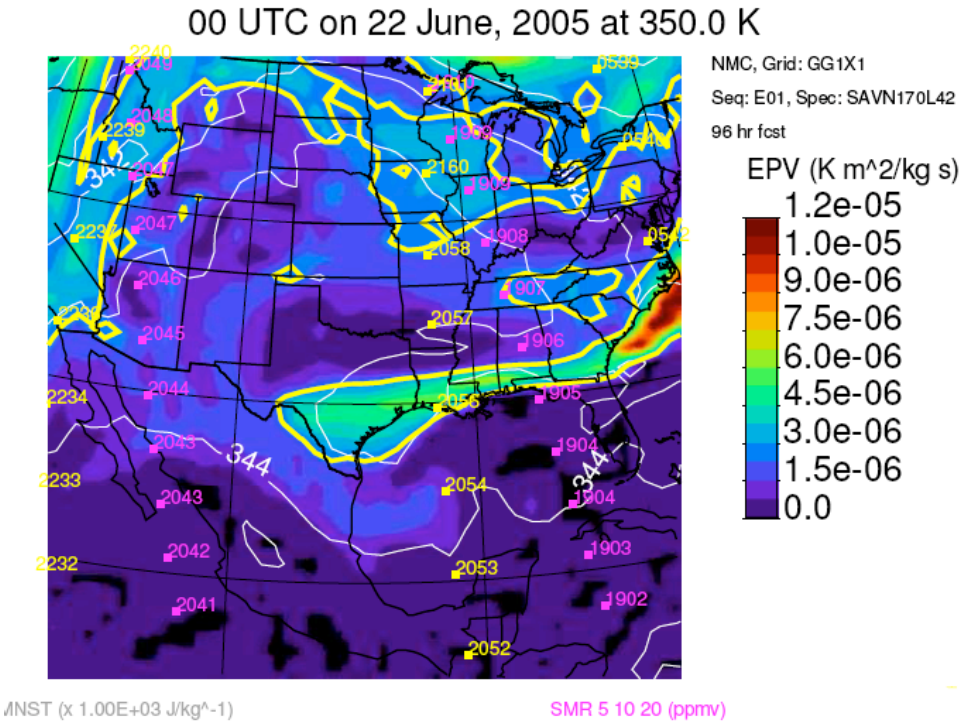
I am attaching cloud altitude, tropopause temperature, and 41kft RH/winds that address tomorrow's flight. Following that is some discussion of Tuesday.


18 UTC on 19 June, 2005 at 178.7 mb
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
42 hr fcst
RH at 41 kft (%)
-12.0
2.0
16.0
30.0
44.0
58.0
72.0
86.0
100.0
Winds (knots)
Z (dam)
Trop (EPV=2.5)


18 UTC on 19 June, 2005 at 121.7 mb
NMC, Grid: GG1X1
Seq: E01, Spec: SAVN170L42
42 hr fcst
Trop Temp (K)
230.0
225.0
220.0
215.0
210.0
205.0
200.0
195.0
190.0
Winds (knots)
Trop (4 kft)



Tuesday (June 21): An interesting PV feature is over us for a HIRDLS flight.



Flying south looks less promising from a cloud point of view for HIRDLS.